SCCFD and ACES

Auxiliary Communications Emergency Service

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What is the project?

Phase 1 -- The Santa Clara County Fire Department (SCCFD), in cooperation with the Cupertino Amateur Radio Emergency Services (CARES) is:

- Purchasing and installing amateur radio equipment in all fire stations in Cupertino.
- Organizing and training Cupertino volunteers to activate and operate these radio stations during a disaster response.

History

- October 2000 – SCCFD and CARES signed an MOU to do…

3. Methods of Cooperation

1. Whenever there is a disaster requiring amateur radio communications, the Department will request the assistance of CARES through the Operations Section of the City. This assistance may include:

a) Dispatching CARES members to Department Fire Stations.

b) Establishing and maintaining portable station emergency communications between the Department stations and the EOC to handle loss of telephone services, direct links to the EOC, and passing messages from the community walk-ins.

c) Establishing and maintaining mobile station communications between Department officials and the EOC as required (Shadows).

d) Maintaining the continuity of communications for the duration of the emergency period or until normal communications channels are substantially restored.

History

- October 2000 – SCCFD & CARES signed an MOU to do what is being accomplished now
- 2013 – conversations started between SCCFD & CARES to upgrade all 3 Cupertino Fire Station amateur radio equipment.
- January 2014 – SCCFD approved & funded the project...
  VCP: Volunteer Communications Package
  ACES: Auxiliary Communications Emergency Service
- December 2014 – Three Cupertino Fire Station packages are built.
- July 2015 – Antenna upgrades are started.

Why is this project being done?

- To respond to the needs of the community post disaster more effectively
- To be ready to interact with the public at locations (fire stations) where we can expect people to go for assistance
- To make the best use of available facilities post disaster with highly skilled RACES volunteers

Background

- Planned deployment of RACES volunteers – Where can we expect to find volunteer responders?
  - In the field at various locations
  - At the City's Emergency Operations Center (EOC)
  - Not at fire stations, until now

Background

County Fire recognizes that…

- Fire stations are natural locations for the community to go to after a disaster, but…
- The fire crews will not be there:
  - Especially after an earthquake, the crews will be in the field.
  - Fire crews will be performing windshield surveys of their assigned area and respond to emergencies as necessary
  - the stations will be vacant.
- Residents will expect some kind of services at fire stations
  - They may need help, perhaps urgently

The solution…

- Create a system where CERT & RACES volunteers can access the fire stations.
- Install equipment for their use ahead of time.
- Include packet radio capabilities.
- Use power off the grid, with battery backup.
- Design the radio package so that it is portable.

Project Goals

What is ACES?

Goals

- Respond more effectively to the needs of the community after the disaster strikes.
- Be ready to interact with the public at key locations (fire stations) where we can expect residents to look for help.
- Make the best use of available SCCFD facilities immediately after a disaster with RACES and CERT volunteers.

Who will do what?

What is ACES?

***Deliverables:* SCCFD will…**

- Purchase and install amateur radio equipment in fire stations.
  - Radios
  - Laptop computer
  - Printer
  - Coaxial cable
  - Antennas
- Organize and train RACES volunteers to activate and operate these radio stations during a disaster response.
  - Auxiliary Communications Emergency Services (ACES)
  - Background check and fingerprint volunteers
  - Provide volunteers the means to enter and use SCCFD facilities when activated.

Who will do what?

What is ACES?

Deliverables: **City RACES organizations will…**

- Help with the build of the communications packages.
- Identify RACES members eligible for Fire Station assignments.

Response procedures and operations

- ACES volunteers will activate at the same time as SCCFD personnel and RACES volunteers.
- Community Emergency Response Team (CERT) volunteers will be part of this system.
- CERT volunteers will interact with the community who come to the fire stations looking for help.
- RACES volunteers will manage voice and data communications equipment.
- ACES volunteers will respond to and operate from local Fire Stations.

Operating at a Fire Station

- Fire Stations provide the volunteers a greater sense of security (we can close and lock the door if necessary).
- It’s a good volunteer workplace in rain, cold, or hot weather.
- There is backup power.
- Other Fire Station responsibilities include (tentative):
  - Ensuring the generator is running
  - Ensuring the station is secure
  - Others?... TBD

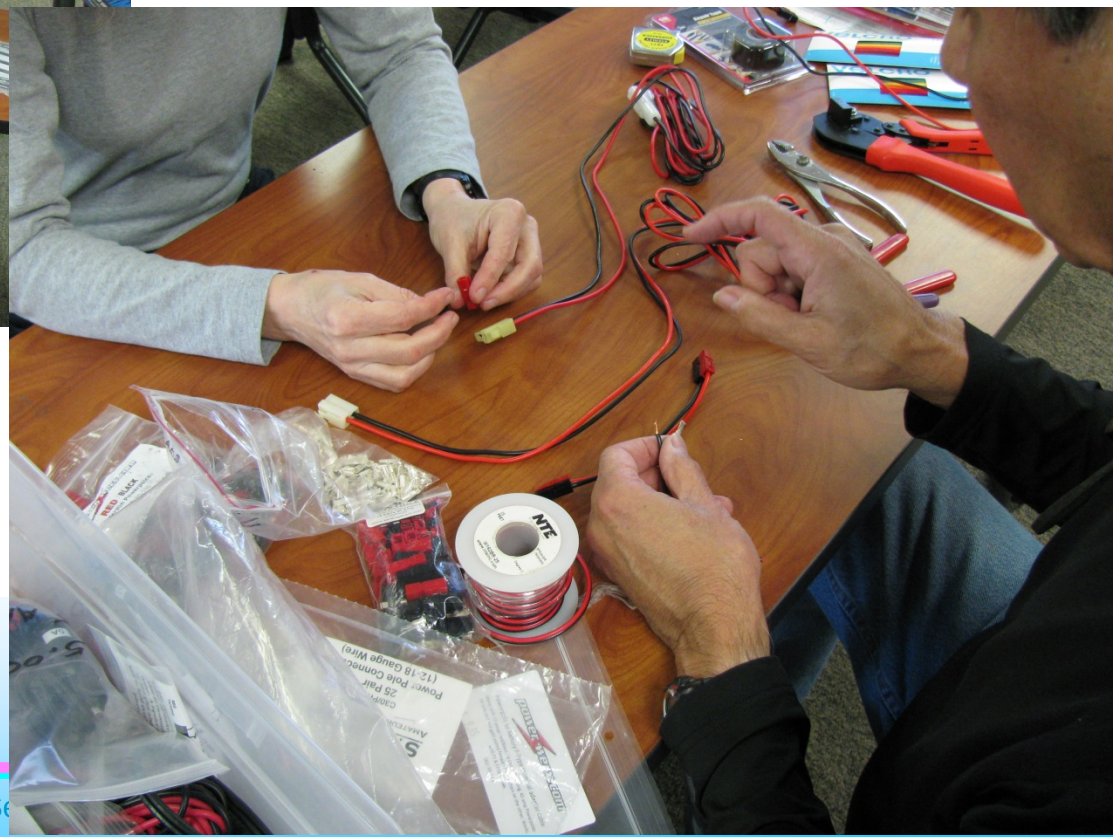
VCP: Volunteer Communications Package

- Upgrade amateur radio equipment at three Cupertino Fire Stations (Phase 1).
  - Kenwood TM-V71 Dual Band VHF/UHF
  - Powerwerx DB-750 Dual Band VHF/UHF Commercial Radio
  - Alinco DR-235T + KPC3
  - Antenna upgrades at all stations
- Radio package design supports portable operation.
- Use power off the grid, supports battery backup.

Communications Package

The Hardware

VCP *Build Party!*



Cupertino Station #71

The Hardware

Seven Springs Station #72

The Hardware

Monta Vista Station #77

The Hardware

What keeps us up at night?

The City has listed the following as hazards of concern:

1. Civil Disturbance
2. Dam Failure
3. Earthquake
4. Power system disruption (Power Failure)
5. Water system disruption (no potable water)
6. Floods
7. Hazardous Materials
8. Landslides
9. Transportation Accidents
10. Terrorism/Weapons of Mass Destruction
11. Wildland/Urban Interface Fires

Ref: Cupertino Emergency Operations Plan, 2005

Power Failure

Ukrainian Cyber Attack

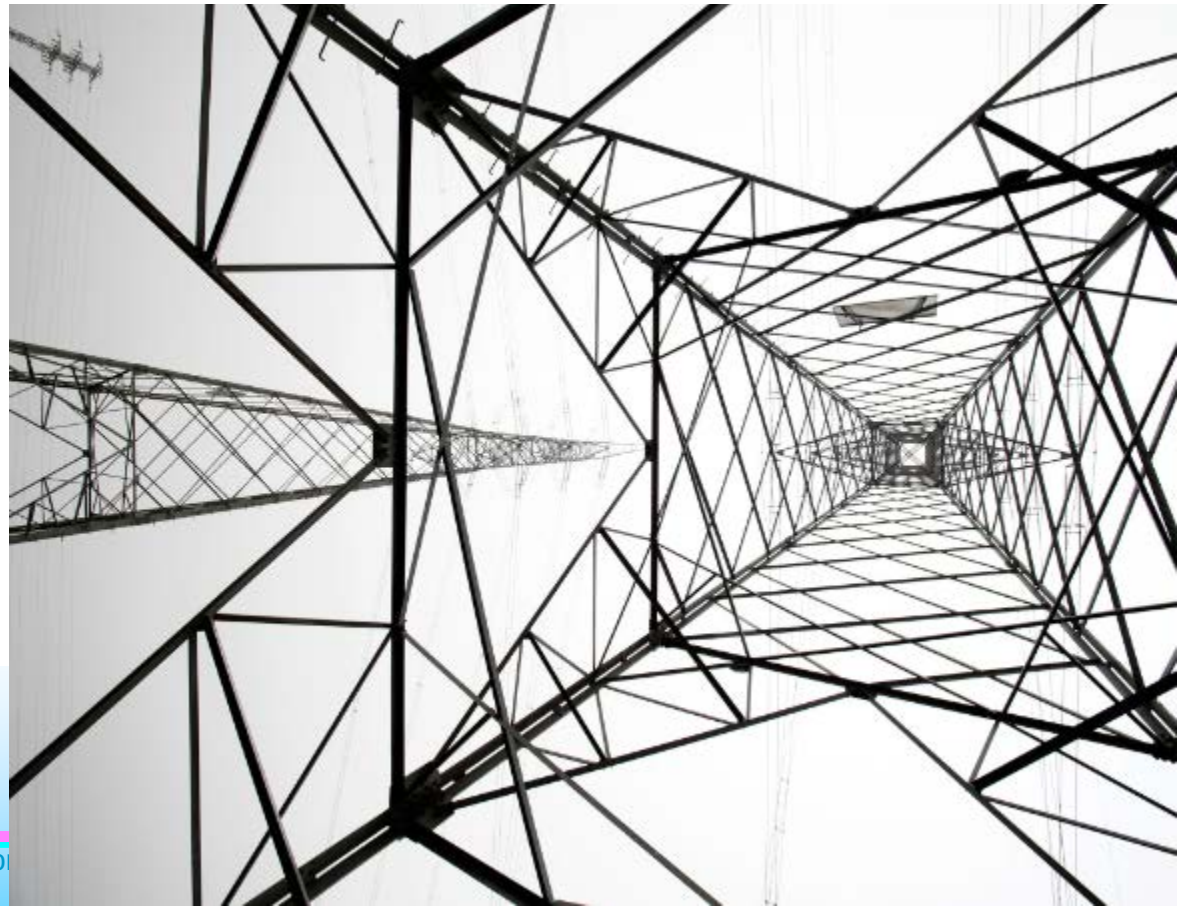
23-Dec-2015

Inside the Cunning, Unprecedented Hack of Ukraine's Power Grid

ref: https://www.wired.com/2016/03/inside-cunning-unprecedented-hack-ukraines-power-grid/

It was 3:30 p.m. last December 23, and residents of the Ivano-Frankivsk region of Western Ukraine were preparing to end their workday and head home through the cold winter streets. Inside the Prykarpattyaoblenergo control center, which distributes power to the region's residents, operators too were nearing the end of their shift. But just as one worker was organizing papers at his desk that day, the cursor on his computer suddenly skittered across the screen of its own accord.

…



Power / Communications Failure

Mapping Capabilities to Hazards

		Response	
Hazards	**What could go wrong**	**Requirements**	**Capabilities**
• Dam Failure	• People – Injuries	• Mass care shelters	• Safety Assessments
• Earthquakes	• People – Trapped	• Evacuations	• Shelter Staff
• **Power Failure**	• People – Homeless	• Field First Aid stations	• Search & Rescue
• Terrorism/WMD	• People – Hungry	• Mass care, feeding	• First Aid
• Wildland Fire	• People – Sick	• DC/Fire Suppression	• Fire Suppression
• Urban Interface Fire	• Structures Damaged	• DC/Prelim Safety	• Watches (creek, fire, traffic, incident, etc.)
	• Structures Burning	• Mass Prophylaxis	• Communications (Field, Shadows, etc.)
	• Utilities – Power	• Search and Rescue	• General resource
	• Utilities – Gas main	• Information Outreach	
	• Utilities – Sewage	• Information Gathering	
	• Utilities – Water		
	• Access problems		
	• Communications loss		

Power / Communications Failure

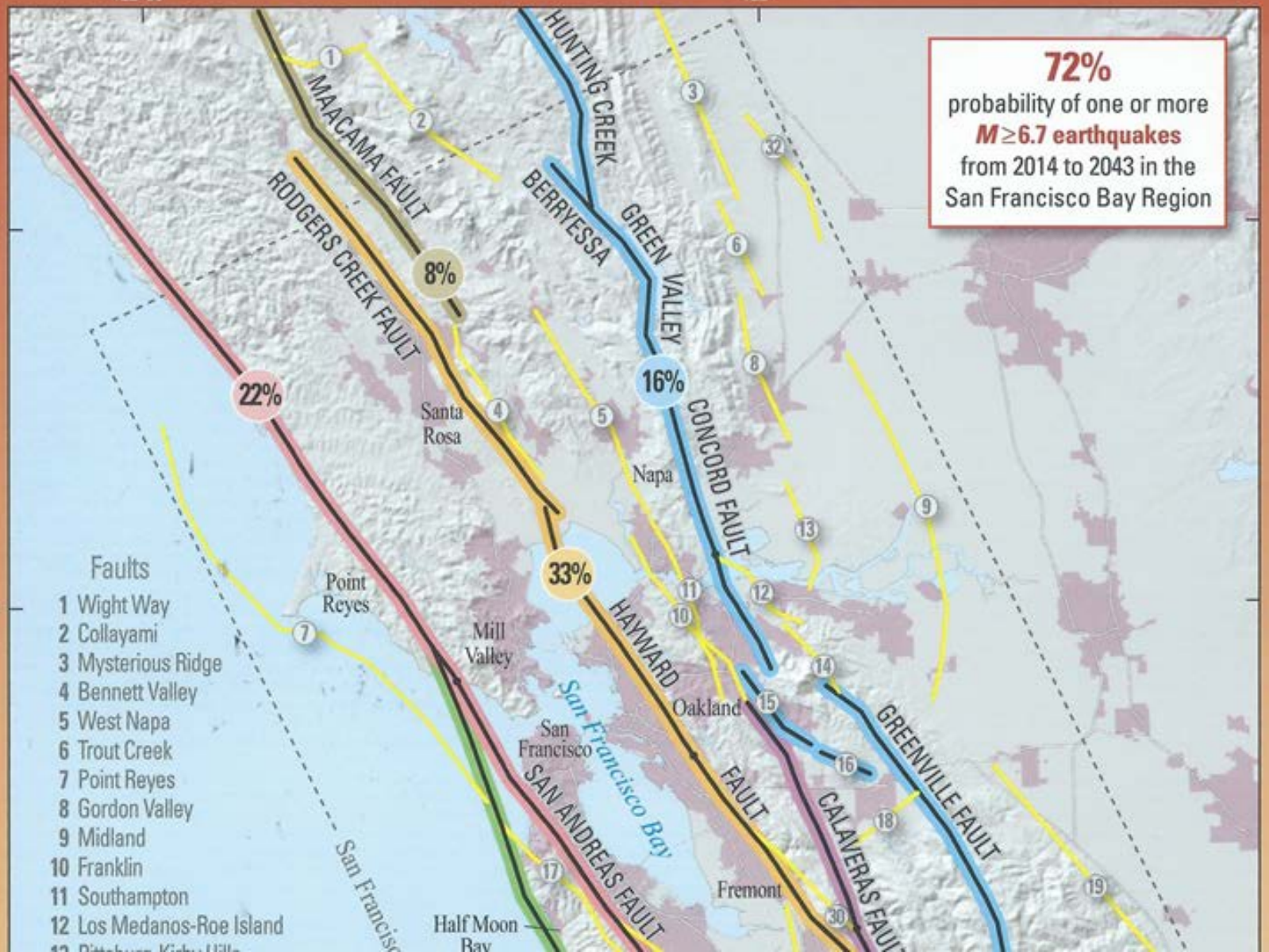
CARES response assignments

1. Preliminary Safety Assessment	CARES collects and reports information about the state of the city immediately after a city-wide emergency or disaster occurred.
2. Infrastructure Safety Assessment	CARES observes and reports on selected Cupertino critical facilities that are deemed to be important to the City or other Agencies.
3. Field Response	CARES members respond and operate at field assignments with CCC during a declared emergency. • Public Information Outreach • Community Emergency Assistance Request Intake; Pass 9-1-1 traffic as required.
4. EOC Support	• Staff the Comm Van / Radio Room • Provide situation roll-up of field reports • Support the EOC

Earthquake

USGS
science for a changing world

Earthquake Outlook for the San Francisco Bay Region 2014–2043



Using information from recent earthquakes, improved mapping of active faults, and a new model for estimating earthquake probabilities, the 2014 Working Group on California Earthquake Probabilities updated the 30-year earthquake forecast for California. They concluded that there is a 72 percent probability (or likelihood) of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2043. Earthquakes this large are capable of causing widespread damage; therefore, communities in the region should take simple steps to help reduce injuries,

Earthquake Scenario

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	• Utilities – Water		
	• Access problems		
	• Communications loss		

Earthquake Scenario

What is CARES doing? Initial Response Assignments

1. Preliminary Safety Assessment	Collect and report on information about the state of the city immediately after a city-wide emergency or disaster occurred.
2. Infrastructure Safety Assessment	Observe and report on selected Cupertino critical facilities that are deemed to be important to the City or other Agencies.
3. Field Response	Operate at designated field assignments – ARKs, Fire Stations, EOC, others. Pass 9-1-1 traffic as required.
4. EOC Support	• Staff the Comm Van • Provide situation roll-up of field reports

ACES… What's left to do

In Cupertino:

- Complete the Monta Vista Fire Station antenna cabling.
- Field Test: 10-December, CARES Earthquake 2016 Exercise

In Los Altos:

- Complete the Fire Station antenna cabling.

SCCFD

- Complete the definition of the ACES Training Program.
- With City RACES, recruit and train local volunteers for working in fire stations during a disaster response.
- After the deployment to these two cities is complete, SCCFD will evaluate the project, and decide if it should be extended throughout all served cities.

Thank you

Any Questions?